THE FOLIOSE AND FRUTICOSE LICHEN FLORA AROUND THE MUSKINGUM RIVER POWER PLANT, MORGAN COUNTY, OHIO[1]

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SHOWMAN, RAY E. The Foliose and Fruticose Lichen Flora Around the Muskingum River Power Plant, Morgan County, Ohio. Ohio J. Sci. 75(1): 33, 1975.

Lichens were surveyed in a relatively uncollected region composed of parts of Morgan, Washington, and Noble Counties, Ohio. A total of 61 species of foliose and fruticose lichens were recorded and new county records include: Morgan County, 40 species; Washington County, 6 species; and Noble County, 7 species. No new state records were established.

Lichen floras are often unfinished, long after floras and distributions of higher plants are fairly well characterized. Lack of economic importance and difficulty in identification make lichens unlikely candidates for extensive research. Lichens, however, are biologically unique and quite interesting if time is taken to examine them. The knowledge of lichens in Ohio has been helped by the valuable work of Conan J. Taylor (1967, 1968), but extensive collecting has been done in only relatively few areas. The present work was done as part of a study of lichens as indicators of air quality (manuscript in preparation) and it was thought that the floristic information should be reported separately.

This study was conducted in a non-urbanized area around a coal-fired power generating plant. The Muskingum River Plant is located adjacent to the Muskingum River in Morgan County, 17 miles northwest of Marietta, Ohio. The study area lies in the unglaciated Allegheny Plateau where topography is characterized by 250–350 foot hills. Exposed bedrock is of Pennsylvanian and Permian age and is calcarious in composition. The natural climax vegetation is mixed oak and beech-maple forests, with small areas of mixed mesophytic forests in the deeper valleys (Gordon, 1966). The land is approximately 40% wooded, 40% pasture, and 20% tilled cropland. A variety of lichen habitats are present in the study area and lichens were found on tree bark, soil, limestone outcrops, and cemetery headstones.

[1]Manuscript received December 4, 1973 (73-77).

METHODS

Lichens were identified at 96 sites within the study area (fig. 1). Lichen-bearing substrates at these sites can be categorized as follows: tree bark, 95 sites; soil, 24 sites; rock outcrops, 15 sites; and cemetery headstones, 14 sites. Many sites contained more than one type of substrate. The methods of study were similar to those reported earlier (Showman, 1973). Difficult specimens were identified by Dr. Clifford M. Wetmore, University of Minnesota. A voucher collection has been deposited in The Ohio State University lichen herbarium.

RESULTS AND DISCUSSION

Sixty-one species of foliose and fruticose lichens were identified, and many new county records were established. Table 1 lists the species found, as well as the counties and the number of sites where they were collected. Nomenclature follows that of Taylor (1967, 1968). The small number of species found in Noble County is due to the small number of sites collected—15; compared to 58 sites in Morgan County and 23 in Washington County.

With one exception, the substrate habitat associations found here were consistent with those reported for the Meigs County region of southeastern Ohio (Showman, 1974). Limestone outcrops examined in the present study contained *Collema tenax, Dermatocarpon mineatum, Pannaria lurida,* and *P. microphylla;* species not found in the Meigs County region. Conversely, *Lasallia papulosa* was found on sandstone in the Meigs County region, but not on the limestone here. Species found on rock in both regions are *Collema subfurvum, Dermatocarpon fluviatile,* species of *Leptogium,*

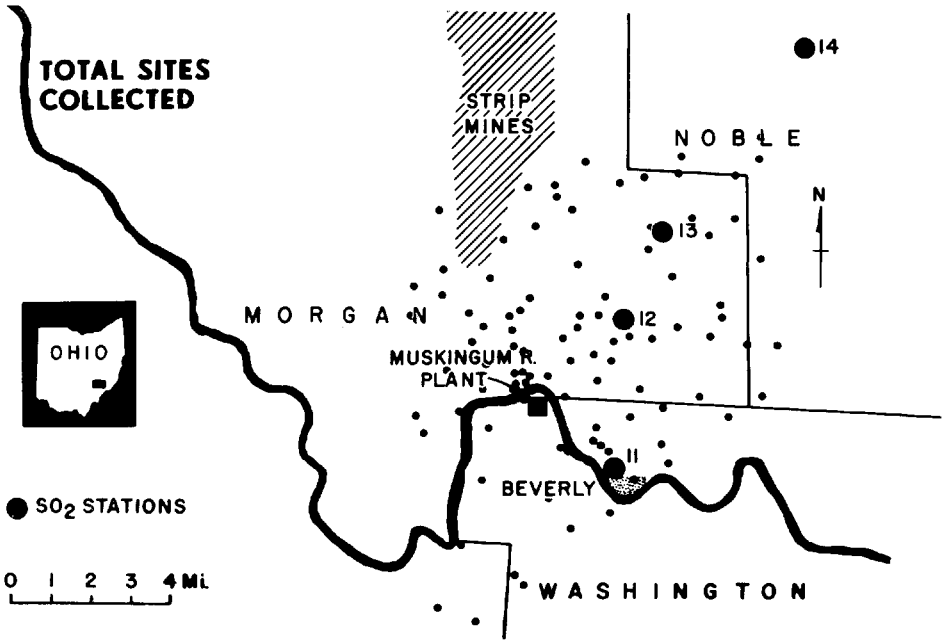

FIGURE 1. Locations of collection sites within the study area.

Parmelia plittii and *P. taractica*. This latter group apparently has a wide range of substrate tolerance while the other above-mentioned species are fairly specific to their respective substrates.

Lichens were identified at 96 sites in a region of Ohio which includes parts of Morgan, Washington, and Noble Counties. Sixty-one species of foliose and fruticose lichens were recorded and many new county records were established, but no new state records were found. The lichen flora of limestone outcrops was different from the flora of sandstone outcrops in the Meigs County region. The floras of other substrate habitats, however, were consistent with those described for the Meigs County region.

LITERATURE CITED

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——— 1968. Lichens of Ohio—Part II. Fruticose lichens. Ohio Biol. Surv. Biol. Notes No. 4. 96 p.

TABLE 1

Foliose and fruticose lichen species collected.

	Washington	Morgan	Noble	Total No. of Sites
Anaptychia granulifera (Ach.) Mass.	x[1]	N[2]		6
A. palmulata (Michx.) Vain.		N		2
A. speciosa (Wulf.) Mass.		N		4
Baeomyces roseus Pers.		N		2
Cetraria ciliaris Ach.	N			1
Cladonia apodocarpa Robb.	x	N		8
C. capitata (Michx.) Spreng.	x	x		3
C. caroliniana (Schwein.) Tuck.	N	N	N	4

TABLE 1. *Continued.*

	Washington	Morgan	Noble	Total No. of Sites
C. clavulifera Vain.	x	N	N	10
C. coniocraea (Floerke) Spreng.		N	x	8
C. cristatella Tuck.	x	x	x	23
C. cylindrica (Evans) Evans		N		9
C. furcata (Huds.) Schrad.	x	N		7
C. piedmontensis Merr.		N		2
C. pyxidata complex (not further characterized)	x	x	x	19
C. rangiferina Wigg.	x	N		3
C. squamosa (Scop.) Hoffm.	x	N		3
C. strepsilis (Ach.) Vain.		N		1
C. subcariosa Nyl.	x			3
C. subtenuis (Abb.) Evans	x	N		2
C. verticillata (Hoffm.) Schaer.	x	x		4
Coccocarpia pellita (Ach.) Muell. Arg.		N		1
Collema subfurvum (Muell. Arg.) Degel.		N		2
C. tenax (Sw.) Ach.		N		2
Dermatocarpon fluviatile (G. Web.) Th. Fr.	x	N		4
D. mineatum (L.) Mann	x	N		3
Hypogymnia physodes (L.) Nyl.		N		1
Leptogium cyanscens Tuck.		N		2
L. lichenoides (L.) Zahlbr.	x	N		6
Pannaria lurida (Mont.) Nyl.		N		1
P. microphylla (Sw.) Nyl.	x	N		2
Parmelia aurulenta Tuck.	x	x	x	40
P. caperata (L.) Ach.	x	x	x	65
P. crozalsiana Harm.		x		2
P. dissecta Nyl.		N	x	2
P. flaventior Stirt.			N	1
P. galbina Ach.	N	x	x	8
P. hypotropa Tayl.		x	N	6
P. livida Tayl.	x	x	N	12
P. plittii Gyeln.	x	N		6
P. rudecta Ach.	x	x	x	72
P. saxatilis (L.) Ach.	N	N		2
P. subaurifera Nyl.		N		1
P. subrudecta Nyl.	x	x	x	45
P. sulcata Tayl.	x	x	x	41
P. taractica Kremp.		N		1
P. ulophyllodes (Vain.) Sav.		N		1
Parmeliopsis aleurites (Ach.) Nyl.		N		1
Peltigera canina (L.) Willd.		N		4
P. polydactyla (Neck.) Hoffm.		N		2
Physcia adscendens (Fr.) Oliv.	x	N		9
P. ciliata (Hoffm.) DuReitz		N		2
P. endococcinea (Koerb.) Th. Fr.	N	N		2
P. grisea (Lam.) Zahlbr.	x	N	N	14
P. lacinulata Muell. Arg.	N	N		2
P. millegrana Degel.	x	x	x	74
P. orbicularis (Neck.) Poetsch.	x	x		43
P. stellaris (L.) Nyl.	x	x	x	32
P. tribacoides Nyl.	x	x	N	14
Pyxine caesiopruinosa (Nyl) Imsh.		N		3
P. sorediata (Ach.) Mont.	x	x	x	20

[1]x indicates confirmation of an existing county record.
[2]N indicates a new county record.